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CENTRAL INTELLIGENCE AGENCY 25X1 REPORT

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I - Civil Aviation in the Soviet Union

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1. Civil aviation in the Soviet Union was controlled by the "Glavnoye Upravleniye Grazhdanskogo Voz dushnogo Flota", incorporated into the Ministry of Traffic. This agency was in charge of the State Air Lines "AEROFLOT", the ground organization of commercial aviation, and a number of special organizations, such as the forest fire police, insect pest control. "AEROFLOT" was activated in 1923, and at present operates air lines having a total length of 15,000 km.
2. Civil aviation, in the event of war, will certainly be assigned supply flights and similar missions, as in "World War II. Soviet commercial aircraft are said to have flown more than 40,000 missions from 1941 to 1945.
3. Sport flying was organized in the OSOAVIAKHIM and DCSAV Federations (powered and motorless flying). These two federations were also in charge of the pre-military training of prospective flying personnel for the air force.

II - Designation and Development of Aircraft Types

4. Aircraft construction was done in special construction brigades, each under the supervision of an experienced designer.
5. The central agency for airframe construction and aerodynamic research work was the MOSCOW Tsagi Institute.
6. The central agency for aircraft engine construction was the Tsiam Institute, founded in 1930.
7. The central agency for materials is the Viam Institute.

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8. Until late 1941, the various fully-developed aircraft types were marked by one to three letters denoting the abbreviations of their utilization, and by added numbers indicating the current development series. The nomenclature was replaced in early 1942. The new system also used letters and numbers, the letters representing the name of the chief designer of the construction brigade which developed the plane and the numbers following representing the current number of the prototype produced by the construction brigade concerned.

Symbols now in use are as follows:

A - O.K. ANTONOV
 ANT - A.N. TUPOLEV (no longer in use, replaced by TU)
 IL - S. ILYUSHIN
 YAK - A.S. YAKOVLEV
 YER - YEREMOLAYEV
 LAGG - Developed in common by LAVOCHKIN, GORBUNOV and GUDKOV
 LA - S.A. LAVOCHKIN
 LI - Foreign types built under license
 MIG - M.I. MIKOYAN and GUREVICH
 PE - V. PETLYAKOV
 PO - N.N. POLIKARPOV
 SU - O.P. SUKHOI
 SA - V.B. SHAVROV
 SHCHE - S.O. SHCHERBAKOV
 TU - A.N. TUPOLEV

Aircraft engines:

AS* - A.D. SHVETSOV
 M - A.D. SHVETSOV
 AM - A.A. MIKULIN
 VK - V.Y. KLIMOV

III - Aircraft Engines **

9. Following is a table of the aircraft engines now installed in Soviet aircraft:

Type	Engine performance		Number of cylinders	Engine and cooling
	Take-off performance	Cruising performance		
1	2	3	4	5
AM-34	860	780	12	V-engine, liquid-cooled
AM-35a	1,350	1,150	12	V-engine, liquid-cooled
AM-38	1,600	1,410	12	V-engine, liquid-cooled
AM-38F	1,700	1,490	12	V-engine, liquid-cooled
AM-42	2,000		12	V-engine, liquid-cooled
AS-82	1,675	1,520	14	double-row radial engine, air-cooled
AS-82-111	1,700	1,540	14	double-row radial engine, air-cooled

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1	2	3	4	5
AS-82-112	same as AS-82-111, but with compressed air starter			
AS-82-1221	same as AS-82-111, with single-stage supercharger			
AS-82-212	same as AS-82-111, with propeller reduction gear 16:9			
AS-82-FNV	1,850	1,630	14	with direct fuel injection
AS-90	2,100		18	double-row radial engine, air-cooled
AS-21	700		7	radial engine, air-cooled
M-11(D,F,M)	145	140	5	radial engine, air-cooled
M-11(G)	110	90	5	radial engine, air-cooled
M-22	480		7	radial engine, air-cooled
M-25	760		9	radial engine, air-cooled
M-40-F	1,500	1,250	12	V-engine, liquid-cooled (Diesel)
M-58	850		12	V-engine, liquid-cooled
M-62-R	1,000	765	9	radial engine, air-cooled
M-63	1,100	960	9	radial engine, air-cooled
M-71	2,100	1,950	18	double-row radial engine, air-cooled
M-85	800		9	radial engine, air-cooled
M-88-B	1,100	990	14	double-row radial engine, air-cooled
M-89	1,300	1,140	14	double-row radial engine, air-cooled
M-120	1,800		?	?
M-300	3,000		?	?
VK-100	840	750	12	V-engine, liquid-cooled
VK-103	1,100	990	12	V-engine, liquid-cooled
VK-105-P,R	1,100	1,050	12	V-engine, liquid-cooled
VK-105-PF	1,260	1,180	12	V-engine, liquid-cooled
VK-107-A	1,600	1,500	12	V-engine, liquid-cooled

IV - Aircraft Types

(Lend-lease aircraft will be dealt with only if Soviet modifications are known)

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10. A-7 [REDACTED]

Glider. Designed by O.K. ANTONOV. It was produced in quantity in 1944, and was used by the Soviet Army for supply missions, particularly the supply of isolated troops. It is a high-wing monoplane, all-wood construction, load capacity: two pilots and ten passengers, or two pilots and one ton of cargo. Take-off by means of a droppable landing gear; lands on dual steel sleds and steel tail skid. Towed mainly by IL-4 and SB-3 aircraft. At present being used by the "Aeroflot" for transport missions. Wing span, 19 m; length, 11.5 m.

11. A-7-3a [REDACTED]

Autogiro. Designed by N.I. KAMOV before the war. It was used during World War II for liaison. Mixed construction, direct drive of rotors at take-off, short wings, turned upwards at tips, triple rudder assembly below elevator assembly. Equipped with M-22 engine. With a crew of two, it makes up to 220 km/h and altitudes of up to 4,000 meters. Minimum length of runway: 28 meters, of landing strip: 18 meters. Weight empty, 2,000 kg; pay-load, 700 kg.

12. ANT-20 [REDACTED]

Constructed by TUPOL EV in 1936 as a replacement for the crashed eight-engine Maxim-Gorki, a commercial plane with a crew of ten and 64 passengers; used during the war as a transport aircraft and shot down. Only one model of this type was made. It had six VK-100 engines and landing gear with two dual wheels of 2.4 meters diameter; wing span, 63 m; length, 32.4 meters; gross weight, 46 tons; maximum speed, 350 km/h; cruising speed, 200 km/h; attainable altitude, 6,900 meters; maximum range, 3,050 km.

13. ARK-3 [REDACTED]

All-metal flying boat, designed for Arctic flying by GBT-VERNIKOV in 1937. During the war extensively used by the Soviet Navy as a reconnaissance and transport plane. Two M-25 engines are mounted on a support on top of the fuselage. Nose compartment is designed for installation of a 7.62 mm, twin-barreled machine gun; another machine gun can be mounted in the fuselage aft of wings. Equipped as a reconnaissance plane, the ARK-3 could carry a bomb load of 1,000 kg and a crew of five; as a transport aircraft, it carried a crew of two and twelve passengers. Gross weight, 5.2 tons; wing span, 19.9 meters; length, 14.5 meters.

14. IL-3 [REDACTED]

Put into service in 1943 as an improved version of the IL-2; basically the same construction as the IL-2, but with a longer cockpit to make room for a second seat; a flexible, 12.7 mm machine gun could be operated by a rear gunner, who at the same time acted as a radio operator. A VK-107 engine was installed to compensate for the additional weight, which increased its speed to 430 km/h. 23.2 mm and 37 mm cannons were also installed temporarily. Otherwise, dimensions and specifications are the same as for the IL-2.

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25X1 15. IL-10 []

Built toward the end of the war; improved version of the IL-2 and IL-3. Two-seat all-metal fighter aircraft. One AM-42 engine. Armament same as IL-3. Wing span 14.8 meters; length, 12 meters; maximum speed 450 km/h.

25X1 16. IL-4 []

An improved version of the DB-3. Twin-engine bomber, low-wing monoplane, all-metal construction, crew of four. Two M-88-B engines. Two 7.62 mm machine guns in nose and rear turrets. Bomb load, 2,000 kg; if used as a naval plane, one torpedo and auxiliary tank for long distance flights. Wing span, 21.4 meters; length, 14.5 meters; gross weight, 15 tons; maximum speed, 425 km/h; range, 4,000 km; attainable altitude, 8,600 meters.

25X1 17. IL-12 []

Postwar construction. Twin-engine commercial aircraft, low-wing monoplane, all-metal construction. Two AS-82-112 engines with four-bladed propellers. Tricycle retractable landing gear. Inside equipment varying with its four modifications: Wing span, 31.7 meters; length, 21.3 meters; gross weight, 17,250 kg; cruising speed, 350 km/h; maximum speed, 410 km/h.

- a. For 32 passengers: range, 1,300 km.
- b. For 27 passengers: range, 2,000 km.
- c. As ambulance plane with 16 litters: range, 3,000 km.
- d. As actual cargo plane: pay-load of 4,000 kg.

25X1 18. IL-18 []

Postwar construction. Four-engine commercial aircraft, for a crew of five and 66 passengers. Low-wing monoplane, all-metal construction, four AS-88-112 engines. Wing span, 39.4 meters; length, 30.5 meters; maximum speed, 500 km/h; range, 3,000 km.

25X1 19. YAK-3 []

Developed from a modification of the YAK-1, with improved shape and a more powerful VK-107 engine, equipped with a cannon, oil cooler shifted to the rear and attached at wings, reduced wing area. This type is still in use. Wing span, 9.45 meters; length, 8.8 meters; gross weight, 2,200 kg; maximum speed, 553 km/h; range 735 km; attainable altitude, 9,000 meters.

25X1 20. YAK-7 A []

Developed as a retraining plane from the YAK-1. Original designation UPI-26. A two-seater plane, seats arranged in tandem for pilot and instructor. Armament reduced to two 12.7 mm machine guns to save weight. This type was also used as a night fighter; in a modified version, such as the YAK-7 A, it was used as a single-seater fighter such as the YAK-1. Wing span, 10 meters, length, 8.5 meters; gross weight, 2,900 kg; maximum speed, 530 km/h.

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21. YAK-9 [REDACTED]

Used in the last half of the war. It represents a further development of the YAK-1 toward a heavy fighter bomber. Armament was the same as the YAK-1, but it could also carry bombs or rockets. Wing span, 10 meters; length, 8.5 meters; gross weight, 3,200 kg; maximum speed (with VK-105 PF engine), 560 km/h; range, 1,400 km; attainable altitude, 11,000 meters.

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22. YAK-9-D [REDACTED]

A lighter version of the YAK-9; with a better rate of climb. Wing span, 10 meters; length, 8.7 meters; gross weight, 3,000 kg; maximum speed, 600 km/h; range, 1,400 km; attainable altitude, 11,800 meters.

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23. YAK-9 T [REDACTED]

A modification of the YAK-9, for use against tanks and fortifications; designed for low-altitude flying. The VK-105 PF engine was retained; however, the 20 mm cannon was replaced by a 37-mm cannon using tank ammunition. Two 12.7-mm machine guns were above the engine as in the YAK-3. Wing span, 10 meters; length, 8.7 meters; gross weight, 3,200 kg; maximum speed, 590 km/h.

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24. YAK-9 U [REDACTED]

This designation was given to the YAK-9 T after it was equipped with a VK-107 engine, the armament and use remaining the same. Wing span, 10 meters; length, 8.5 meters; maximum speed, 710 km/h.

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25. YAK-11 [REDACTED]

Developed in the last phase of World War II. A modified version of the YAK-9 U, equipped with a VK-107 A engine. Armament same as that of YAK-9 U. Wing span, 10 meters; length, 8.7 meters; range 720 km; maximum speed, 618 km/h.

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26. YAK-15 [REDACTED]

The first jet-fighter developed by YAKOVLEV. All-metal construction, developed from the YAK-3. Jet-engine apparently equipped with axial-flow compressor set under fuselage forward of wings. Tricycle retractable landing gear. Three cannon or machine guns above air intake. Specifications have been kept secret. Measurements are approximately the same as for the YAK-3.

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27. YAK-8 [REDACTED]

Postwar construction for the State Air Lines. Improved version of the YAK-6, with enlarged fuselage; two M-11-M engines; retractable landing gear; radio set and searchlight for landing in nose compartment. Two-man crew and eight passengers. Wing span, 14.8 meters; length, 11.35 meters; gross weight, 2,700 kg; range, 1,350 km; maximum speed, 250 km/h; attainable altitude, 4,000 meters.

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28. YAK-10 [REDACTED]

Postwar construction. Commercial plane; a light, high-wing monoplane for three or four passengers. Equipped with M-11 F engine. Landing gear exchangeable for floats. Not built in quantity.

29. YAK-12 [REDACTED]

Sport plane for three or four persons. Low-wing monoplane, all-wood construction, M-11 M engine. Wing span, 10.5 meters; length, 7.5 meters.

30. YAK-14 [REDACTED]

High-wing monoplane for three or four passengers. Improved version of the YAK-10. Fuselage of steel tubes, wooden wings, cabin door on left side. Wing span, 12 meters; length, 8.44 meters; gross weight, 1,200 kg; range, 1,000 km; maximum speed, 200 km/h; attainable altitude, 4,025 meters.

31. YAK-16 [REDACTED]

Twin-engine, light commercial plane. Low-wing monoplane, all-metal construction, two seven-cylinder AS-21 engines of 700 HP each, two-bladed propellers, crew of three and 10 passengers. Wing span, 21 meters; cruising speed, 200 km/h; landing speed, 90 km/h; range, 1,000 km; attainable altitude, 5,000 meters.

32. YAK-18 [REDACTED]

All-purpose trainer. Low-wing monoplane; fuselage projecting beyond cabin; all-metal construction (skinned metal frame), one M-11 RF engine, two-bladed propeller; closed cabin with two seats in tandem, dual controls and instrument panels. Wing span, 10.6 meters; length, 8.03 meters; gross weight, 1,070 kg; range, 900 km; maximum speed, 257 km/h; cruising speed, 215 km/h; landing speed, 85 km/h; attainable altitude, 5,000 meters.

33. YER-2 [REDACTED]

Reconnaissance plane and light bomber, designed by YERMOLAYEV. Mid-wing monoplane, all-metal construction, two VK-103 engines, retractable landing gear, pilot's cabin shifted to the left from center line for access to the glazed nose, observer's station approximately at middle of fuselage, three flexible 7.62-mm machine guns. Wing span, 20.6 meters; length, 14.3 meters; gross weight, 7,200 kg; range, 1,100 km; maximum speed, 420 km/h; crew of three or four.

34. YER-4 [REDACTED]

Improved version of the YER-2, put into service toward the end of the war. Symmetrical arrangement of pilot's cabin, two VK-105 engines, three 12.7-mm machine guns, measurements same as YER-2. Maximum speed, 460 km/h; range, 1,100 km; gross weight, 7,300 kg.

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35. LA-5 []

Modification of the LAGG-3, developed by LAVOCHKIN in 1942 for the then novel AS-82 F engine. Produced in quantity in 1943. The cannon which previously fired through the propeller hub was replaced by two synchronized cannon above the engine; two 50-kg bombs could also be carried under the wings. Wing span, 9.8 meters; length, 8.5 meters; gross weight, 3,360 kg; maximum speed, 560 km/h; range, 650 km.

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36. LA-5-2m (?) []

A modification of the LA-5, used as a trainer and as a courier and liaison plane. The type designation was not definitely determined; perhaps the correct designation is LA-6. Wing span, 9.8 meters; length, 8.9 meters.

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37. LA-7 []

A modification of the LA-5, equipped with AS-82 FNV engine. Built in 1944. Standard armament: two synchronized 20-mm cannon. Some modified versions of this type are armed with two additional synchronized 12.7-mm machine guns or two synchronized 20-mm cannon. One modification, designed for employment against tanks, carried two 20-mm cannon and one synchronized 37-mm cannon under the engine. Wing span, 9.8 meters; length, 8.7 meters; gross weight, 3,400 kg; range, 750 km; maximum speed, 600 km/h.

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38. LA-9 []

Postwar construction. Fighter, low-wing monoplane, all-metal construction, AS-90 engine, two 20-mm cannon in the wings, two synchronized, 12.7-mm machine guns in fuselage. Wing span, 10.6 meters; length, 9.2 meters.

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39. LI-2 []

A modification of the DC-3, already built in the Soviet Union under American licence patent before the war. Prior to the war, these planes (adapted to conditions prevailing in the Soviet Union) flew on several air lines under the type designation PS-84, with LI-62 R engine. During the war, they were used as military transport aircraft, equipped with a rigid machine gun in nose compartment and a flexible machine gun at the rear of fuselage, in addition to two machine guns which could be operated from the rear cabin windows. Wing span, 28.9 meters; length, 19.6 meters; gross weight, with crew of three and 21 passengers, 11,400 kg; maximum speed, 330 km/h.

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40. MDR-6 []

A modern design by BEREVS. Put into service shortly before the outbreak of war, and still in use. Naval long-range reconnaissance plane, high-wing monoplane, all-metal construction, equipped with two LI-63 engines, crew of five or six; two twin-barreled, 7.62-mm machine guns installed in nose and upper side of fuselage. Bomb load unknown. Wing span, 19.8 meters; length, 14.7 meters; maximum speed, 310 km/h.

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25X1 41. MTB-2 []

The type designation of the long-range, reconnaissance sea-plane used for antisubmarine missions, developed from the large flying boat ANT-44, a TUPOLEV design. Equipped with four M-87 engines, set on the wings, and one AM-34 engine in the fuselage for the compressor. Wing span, about 37 meters; length, about 24 meters.

25X1 42. MIG-3 []

An improved version of the MIG-1. Open cockpit, AM-35 A engine, armament same as MIG-1, six RS-81 rockets. Wing span, 11.4 meters; length, 9.6 meters; gross weight, 2,900 kg; range, 800 km; maximum speed, 550 km/h; attainable altitude, 10,600 meters.

25X1 43. MIG-5 []

Put into service in the last year of the war. Equipped with M-71 engine, four synchronized 20-mm cannon and six RS-81 rockets under the wings. Wing span, 11.4 meters; length, 9.5 meters; gross weight, 3,700 kg; range, 1,000 km; maximum speed, 655 km/h.

25X1 44. MIG-7 []

Fighter, powered by double-row radial engine, with propeller and rocket engine using liquid fuel set aft of pilot's cabin. Improved version of the MIG-5. No details available.

25X1 45. MIG-9 []

Twin-engine jet fighter, with one cannon on each side of fuselage.

25X1 46. KZ-20 []

Double-fuselage cargo glider, designed by V.K. GRIBOVSKI. Used as transport aircraft during the war. Load capacity: two tons, or 20 soldiers with full equipment.

25X1 47. MIG- Utka []

Displayed in MOSCOW on Air Force Day in 1946. All-wood construction, tail assembly in front section of fuselage, propeller at rear, M-11 engine at rear of fuselage, tri-cycle landing gear, retractable, three-place cabin. Designed as all-purpose sport plane; also used as courier aircraft or light transport plane. Since wings and elevator assembly were designed to be detachable, the fuselage can also be used as a motor sledge. Wing span, 10 meters; length, 8 meters; maximum speed, 210 km/h.

25X1 48. OMEGA []

First Soviet copy of a helicopter, designed by I.P. BRATUKHIN. Skinned steel tube frame. Two contra-rotating rotors; two nine-cylinder, radial engines, air-cooled; rigid landing gear; maximum speed, 180 km/h; rate of climb, 6 meters per second.

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49. PE-2 []

Bomber or dive bomber, designed by Vladimir PETLYAKOV. Put into service in 1940. Low-wing monoplane, two VK-105 R engines, crew of four, two rigid 7.62-mm machine guns in upper section of nose compartment, one flexible 12.7-mm machine gun at rear of cabin, one flexible 12.7-mm machine gun under fuselage; bomb load, 1,000 kg. The original type designation was PE-100. Wing span, 17.2 meters; length, 18.6 meters; gross weight, 7,700 kg; maximum speed, 540 k /h; range, 1,160 km.

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50. PE-3 []

A modified version of the PE-2, with rotatable, 12.7-mm machine gun in rear section of cabin.

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51. PE-8 []

This type was built as a heavy bomber during the war for strategic missions. It was originally designated TB-7 but later redesignated PE-8, after its designer PETLYAKOV. Low-wing monoplane, all-metal construction, equipped with AM-38 engines, three-bladed propellers, rotatable machine gun mount with twin-barreled 7.62-mm machine guns in nose, 12.7-mm machine gun in rear section of cabin, flexible 20-mm cannon in tail, 3,650 kg bomb load, crew of eight to ten. Wing span, 40 meters; length, 24.5 meters; gross weight, 22,300 kg; range, 4,000 km; maximum speed, 370 km/h; attainable altitude, 8,500 meters. A limited series of this type was equipped with M-40 F Diesel engines, which increased the maximum speed to 376 km/h. AS-82 FNV engines were utilized toward the end of the war. This modified version was equipped with one 20-mm cannon, located in the turret at fuselage, and 12.7-mm machine guns in nose. Bomb load, 4,500 kg; gross weight, 29,900 kg; range, 4,030 km; maximum speed, 387 km/h; attainable altitude, 8,600 meters. This heavy bomber is said to have been flight-tested with jet-engines after the war.

1 Annex: 36 sketches.

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[] Comments:

* This is usually abbreviated ASH.

** For corrections to this and the following paragraphs, see [] Comments.

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Comments: Most of the data in this report are in accordance with available information and reports published in the technical Soviet press. Following are detailed comments on the reported information:

1.

III - Aircraft Engines

The somewhat vague term "Cruising Performance" under "Engine Performance" (para 9) stands both for the nominal power for a rated altitude (for first speed) and for the maximum permissible continuous power output.

Nominal Power	HP	Altitude (in meters)
AS-82-111	1,540	2,000
AS-82-FNV	1,630	1,600
M-40 F	1,250	6,000
M	1,140	6,000
VK-105 P,R	1,050	4,000
VK-105 PF	1,180	2,700
VK-107 A	1,500	4,500

With the other engines, "Cruising Performance" in most cases means maximum permissible continuous power output.

2. Regarding the various types of engines listed in para 9, the following corrections and remarks should be made:

AS-82-1221: "With compressed air starter, as for 112, but with changed ratio and one-speed supercharger."

AS-82-212: "With compressed air starter, as for the AS-82-112, but with propeller reduction ratio of 16:9."

3. M-25: Add "W", to read "M 25 W".
4. M-58: This type engine is unknown.
5. M-85: This is a 14-cylinder, double-row radial engine.

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6. M-120: According to previous records, this is a liquid-cooled, 18-cylinder engine with three blocks of six cylinders each.
7. M-300: This is a further development of the VK-100, a 36-cylinder liquid-cooled engine with six blocks of six cylinders each.

IV - Aircraft Types8. A-7 (para 10)

It was ascertained from captured A-7s that the pay-load is one pilot and six passengers or one pilot and 850 kg of cargo.

9. ANT-20 (para 12)

This was the so-called "Flying Propaganda Office", equipped with a printing plant, which became known under the designation L-760. It had six AM-34 engines. It is not known whether others of this type were built.

10. IL-3 (para 14)

The type designation IL-3 for the two-seater version of the IL-2 was frequently mentioned but never confirmed. All shot-down two-seat versions of the IL-2 were designated IL-2, and not, as expected, IL-3. The VK-107 engine was never found in this type. The utilization of this engine in the IL-2 ground attack aircraft seems questionable.

11. IL-10 (para 15)

The statement that this type of aircraft was a "fighter" is a mistake.

12. IL-18 (para 18)

The maximum speed of 500 km/h seems to be exaggerated. The maximum cruising speed of this plane is given in press reports as 360 km/h and its maximum speed as 480 km/h.

13. YAK-3 (para 19)

Only a more powerful version of the M-105 engine, the M-105 PR 2, was found installed in the YAK-3 during World War II. The installation of a VK-107 engine would be possible. In this case, however, the maximum speed would be about 650 km/h at an altitude of 5,500 meters. The gross weight of this plane is about 3,400 kg, not 2,200 kg.

14. YAK-7 (para 20)

For this type also, the gross weight given is too low. The 2,900 kg probably represent the weight empty.

15. YAK-9 (paras 21 thru 24)

The YAK-9 was captured and observed during World War II in the following modifications, all equipped with M-105-PR engine:

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a. YAK-9d, an escort fighter with enlarged fuel tanks, one 20-mm cannon firing through the propeller hub, and one 12.7-mm synchronized machine gun.

b. YAK-9t, an antitank plane carrying a smaller fuel load, equipped with one 37-mm cannon and one 12.7-mm machine gun.

c. YAK-9u, with heavier armament and a larger fuel load.

d. YAK-9..(?), with lighter armament, or completely unarmed, but having enlarged auxiliary fuel tanks; employed as a naval reconnaissance aircraft.

16. YAK-11 (para 25)

On Air Force Day in 1947, this plane was called a trainer, so that it may be considered a modern replacement of the YAK-7. According to available information, the YAK-11 is assumed to have a less powerful engine than the YAK-7. Possibly the Asch-21 radial engine is installed in this plane; probably it also has a lighter armament than the YAK-9u.

17. YAK-15 (para 26)

According to available information, this type is of mixed construction (not all-metal construction).

18. YER-2 (para 33)

A limited series (of 70) went into production before the war, but was not completed until after the outbreak of war. Aircraft of this type were powered by a M-105 R engine.

19. YER-4 (para 34)

This type, which was in production toward the end of the war, was to serve as a long-range bomber, and was equipped with a new type Diesel engine (M-30).

20. LA-5-2m (para 36)

This type is unknown. The LA-6 designation would indicate its utilization, since the odd numbers are reserved for fighter aircraft.

21. LA-7 (para 37)

The utilization of a synchronized 37-mm cannon in this type of aircraft seems improbable. The alternative equipment of the LA-7 with a VK-107 engine is considered more likely. In this modification, the 37-mm cannon could be installed to fire through the propeller hub. One LAGC-1 equipped with the M-107 engine was captured.

22. LA-9 (para 38)

The installation of the 18-cylinder, AS-90 engine seems questionable. [redacted] the LA-11 which [redacted] as well as the LA-9, have been equipped with M-82 engines. The diameter given for the 18-cylinder, AS-90 engine is believed to be too large for an LA-type aircraft.

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23. MIR-6 (para 40)

Descriptions of the MIR-6 flying boat have been available since the beginning of the war; however, this type was never observed in the European Theater of war.

24. MTB-2 (para 41)

This type is not known. A four-engine flying boat was observed near KHIKI in late 1947. The utilization of a special motor for supercharger drive in a flying boat seems doubtful.

25. MIG-3 (para 42)

The attainable altitude of 10,600 meters seems too low, since the MIG-3 was the only Soviet high-altitude fighter. [REDACTED]

[REDACTED] the service ceiling of this type was 12,000 meters.

26. MIG-5 and MIG-7 (paras 43 and 44)

No information is available on these two types.

27. OMEGA (para 48)

This helicopter is equipped with two five-cylinder, H-11 engines, and not with two nine-cylinder, radial engines.

28. PE-3 (para 50)

The PE-3 was a modification of the PE-2, used as a reconnaissance plane; it did not feature the dive brakes of the PE-2, and had enlarged fuel tanks.

29. PE-8 (para 51)

The experimental equipment of the PE-8 with jet engines seems questionable, considering its construction. The experimental utilization of a turbo-jet powerplant in this type of aircraft is also considered improbable.

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